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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/570,159	03/01/2006	Noboru Fukuda	01520725PUS1	4886

2292 7590 09/03/2009

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EXAMINER	
HEARD, THOMAS SWEENEY	
ART UNIT	PAPER NUMBER
1654	

NOTIFICATION DATE	DELIVERY MODE
09/03/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/570,159	FUKUDA ET AL.	
	Examiner	Art Unit	
	THOMAS S. HEARD	1654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *9* is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☒ Claim(s) *5-8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/03/2008 06/01/2006 03/01/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The Restriction under 35 U.S.C. 121 and 372, applied in the previous office action mailed 5/1/2009 is hereby withdrawn in addition to the election of species requirement.

Claim(s) 1-9 are pending. Applicants have amended claim(s) 5, 7, and 8. Claims 1-9 are hereby examined on the merits.

Claim Rejections - 35 USC § 102

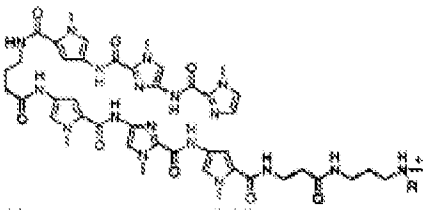
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by White et al., Chemistry & Biology, Vol. 4, No. 8,569-578, (1997), from Applicant's submitted ID.

The instant invention is drawn to a TGF-Beta gene expression inhibitor comprising a pyrrole-imidazole polyamide containing: an N-methylpyrrole unit (hereinafter also referred to as Py), an N- methylimidazole unit (hereinafter also referred to as Im) and a gamma-aminobutyrate unit, wherein said pyrrole-imidazole polyamide can be folded into a U-shaped conformation at the y- aminobutyrate unit.

White et al discloses the following structure:

 . This structure has a gamma-aminobutyrate moiety (–NH-$(CH_2)_3$-C(O)-)as noted in the turn of the structure on the left, and also comprises a beta-alanine unit (–NH-$(CH_2)_2$-C(O)-) at the tail end of the molecule.

Because the structural limitations of Claims 1 and 2 are fully met, the properties:

(1) can be folded into a U-shaped conformation at the y- aminobutyrate unit in a minor groove of a double helix region (hereinafter referred to as target region) which comprises a part or all of the following base sequence from -557 to -536 (SEQ ID NO: 1) in a human transforming growth factor 131 (hereinafter also referred to as hTGFBeta1) promoter, and a complementary strand thereof: TAAAGGAGAGCAATTCTTACAG wherein a Py/Im pair corresponds to a C-G base pair, an Im/Py pair corresponds to a G-C base pair, and a Py/Py pair corresponds to both an A-T base pair and a T-A base pair, or

(2) the TGF-13 gene expression inhibitor according to claim 1 or 2, wherein said target region is a double helix region comprising a part or all of the following base sequence from -548 to -537 (SEQ ID NO: 2) in the hTGF-131 promoter, and a complementary strand thereof, GCAATTCTTACA, or

(3) the TGF-13 gene expression inhibitor according to claim 1 or 2, wherein said target region is a double helix region comprising a part or all of the following base sequence from -548 to -537 (SEQ ID NO: 2) in the hTGF-131 promoter, and a complementary strand thereof, GCAATTCTTACA,

from Claims 1, 3, and 4 respectively, must be inherent in the structure. Therefore, the invention as claimed is anticipated by the prior art.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The MPEP states that the purpose of the written description requirement is to ensure that the inventor had possession, as of the filing date of the application, of the specific subject matter later claimed.

The factors considered in the Written Description requirement are:

(1) level of skill and knowledge in the art,

(2) partial structure,

(3) physical and/or chemical properties,

(4) functional characteristics alone or coupled with a known or disclosed correlation between structure and function, and

(5) the method of making the claimed invention.

In the instant case, the claims are drawn to a TGF-beta gene expression inhibitor comprising a pyrrole-imidazole polyamide containing: an N-methylpyrrole unit

(hereinafter also referred to as Py), an N- methylimidazole unit (hereinafter also referred to as Im) and gamma-aminobutyrate unit, wherein said pyrrole-imidazole polyamide can be folded into a U-shaped conformation at the gamma-aminobutyrate unit in a minor groove of a double helix region (hereinafter referred to as target region) which comprises a part or all of the following base sequence from -557 to -536 (SEQ ID NO: 1) in a human transforming growth factor 131 (hereinafter also referred to as hTGFβ1)promoter, and a complementary strand thereof:

TAAAGGAGAGCAATTCTTACAG

wherein a Py/Im pair corresponds to a C-G base pair, an Im/Py pair corresponds to a G-C base pair, and a Py/Py pair corresponds to both an A-T base pair and a T-A base pair..

(1) Level of skill and knowledge in the art:

The level of skill to practice the art of the instantly claimed invention is high with regard to synthesis, isolation, structure analysis of the compounds, bioassays and structure function assay are all high skill techniques and require broad knowledge in the field.

(2) Partial structure: (3) Physical and/or chemical properties: and (4) Functional characteristics:

The structural components are those of pyrrole-imidazole (Im-Py) used in making repeating units that intercalate to specific sequences of DNA.

(5) Method of making the claimed invention:

Standard nucleic acid synthesis known in the art.

As stated supra, the MPEP states that written description for a genus can be achieved by a representative number of species within a broad generic. It is unquestionable that Claim(s) 1- 4 are a broad generic, with respect to all possible compounds encompassed by the claims. The possible structural variations are limitless to any class of compound that can specifically bind all or part of SEQ ID NO:1-3.

It must not be forgotten that the MPEP states that if a biomolecule is described only by a functional characteristic, without any disclosed correlation between function and structure of the sequence, it is "not sufficient characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence. "MPEP § 2163.

Here, though the claims may recite some functional characteristics, the claims lack written description because there is no disclosure of a correlation between function and structure of the compounds beyond compounds disclosed in the examples in the specification. There is one example and while having written description for that specific example there is insufficient description of a DNA sequence to which either the specific Im/Py containing structure, or the broad generic Im/Py structures would bind, and that would allow one of skill in the art to practice the invention as claimed. The SEQ ID NO:1-3 are

taaaggagag caattcttac ag SEQ ID NO:1

g caattcttac a SEQ ID NO:2

tcttac SEQ ID NO:3

The "*part or all*" limitation of Claims 1, 3, and 4 are drawn to entirely different DNA sequences, and those partial sequences of SEQ ID NO:1, for example taaaggagag do not share a common core with that of SEQ ID NO:3, tcttac. Assuming from the

specification that the compound of Claim 5, to which Applicants have written description, binds part of the DNA sequence of SEQ ID NO:1, part of this sequence has no common core with SEQ ID NO:2 or SEQ ID NO:3, that of the poartial and 5' sequence of taaaggaga. There has been no guidance provided on how to combine the Im and Py units along with the beta-alanine and gamma-aminobutyrate moieties such that one of ordinary skill in the art would know what correlates the structure to function.

Further, 37 CFR 1.57(c) states that "Essential material" may be incorporated by reference, but only by way of an incorporation by reference to a U.S. patent or U.S. patent application publication, which patent or patent application publication does not itself incorporate such essential material by reference. "Essential material" is material that is necessary to:

> (1) Provide a written description of the claimed invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and set forth the best mode contemplated by the inventor of carrying out the invention as required by the first paragraph of 35 U.S.C. 112;
> (2) Describe the claimed invention in terms that particularly point out and distinctly claim the invention as required by the second paragraph of 35 U.S.C. 112; or
> (3) Describe the structure, material, or acts that correspond to a claimed means or step for performing a specified function as required by the sixth paragraph of 35 U.S.C. 112.

The specification does not clearly teach the structure function relationships such the one of ordinary skill in the art is informed of this relationship, and also demonstrate that applicants are in possession of he full genus of Claims 1-4

The description requirement of the patent statue requires a description of an invention, not an indication of a result that one might achieve if one made that invention. See In re Wilder, 736, F.2d 1516, 1521, 222 USPQ 369, 372-73 (Fed. Cir. 1984)

(affirming rejection because the specification does "little more than outlin[e] goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate.")

Accordingly, it is deemed that the specification fails to provide adequate written description for the genus of the claims and does not reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the entire scope of the claimed invention.

Claim Objections

Claims 5-8 has the following phrases that may be changed for clarity. Optionally forms an amide is not really what is intended, rather the carboxyl is an amide which can be optionally to N, N-dimethylaminopropylamine. This compound is then further conjugated to another moiety. It is assumed the conjugation means bonding, but the use of two different words is not clear. Changing the carboxyl group to optionally be an amide, which is then bonded to N, N-dimethylaminopropylamine which is then further optionally bonded to fluorescein-isothiocyanate is clearer in meaning.

Notice to Comply with Requirements for Patent Applications Containing Nucleotide Sequence and/or Amino Acid Sequence Disclosures

This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR

1.821 through 1.825 for the reason(s) set forth below. **All sequences disclosed in the application must comply with the requirements of 37 C.F.R. 1.821-1.825, not only those recited in the claims.**

In Claims 1, 3, and 5, for example, nucleic acid sequences do not have corresponding SEQ ID identifiers. Applicants should make sure that the Specification, Drawings, and Claims conform to proper sequence rules stated in **37 C.F.R. 1.821-1.825.**

All such sequences are relevant for the purposes of building a comprehensive database and properly assessing prior art. It is therefore essential that all sequences, whether only disclosed or also claimed, be included in the database.

Please note that examination cannot continue unless the sequence compliance rule requirements are fulfilled. The applicant should carefully review the Application for any other sequences, in order to avoid necessitating a second Notice To Comply and hindering prosecution.

Conclusion

Claim 9 is allowed. No claims are allowed.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art contained in the reference of record can be applied in the next office action.

Applicant should specifically point out the support for any amendments made to the disclosure, including the claims (MPEP 714.02 and 2163.06). Due to the procedure outlined in MPEP § 2163.06 for interpreting claims, it is noted that other art may be applicable under 35 U.S.C. § 102 or 35 U.S.C. § 103(a) once the aforementioned issue(s) is/are addressed.

Applicant is requested to provide a list of all copending applications that set forth similar subject matter to the present claims. A copy of such copending claims is requested in response to this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas S. Heard whose telephone number is (571) 272-2064. The examiner can normally be reached on 9:00 a.m. to 6:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on (571) 272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas S Heard/
Examiner, Art Unit 1654

/Cecilia Tsang/

Supervisory Patent Examiner, Art Unit 1654